

WHAT IS CLAIMED IS:

1. A composite product forming a collagen support comprising at least one porous collagen layer covered on at least one side with an essentially compact collagen membrane selected from the group consisting of a collagen film prepared by drying a collagen gel and from a compressed collagen sponge.
2. The product according to claim 1 wherein said collagen gel is dried in a fluid selected from air and a gaseous fluid.
3. The product of claim 1, wherein the collagen of at least one of the porous layer and of the essentially compact membrane is selected from collagen and a mixture of collagen with a substance selected from the group consisting of a polysaccharide, a cellulose, dextran, an alginate and a carrageenan.
4. The product of claim 3 wherein said polysaccharide is selected from glycosaminoglycan and chitosan.
5. The product of claim 1 wherein at least one of the porous layer and of the essentially compact membrane, comprises living cells selected from normal living cells, genetically modified living cells and malignant living cells.
6. The product of claim 5, wherein said living cells are originating substantially exclusively from young subjects.
7. The product of claim 5, wherein said living cells are originating substantially exclusively from elderly subjects.
8. The product of claim 5, wherein the living cells are selected from the group consisting of fibroblasts, keratinocytes, melanocytes, Langerhans' cells originating from the blood, endothelial cells originating from the blood, blood cells, particularly macrophages or lymphocytes, adipocytes, sebocytes, chondrocytes, osteocytes, osteoblasts and Merkel's cells originating from the blood, said cells being normal, genetically modified or malignant.
9. A composite product forming a collagen support comprising at least one porous collagen layer covered on at least one side with an essentially compact collagen membrane selected from a collagen film prepared by drying a collagen gel and from a compressed collagen sponge, said porous layer comprising living fibroblasts and said essentially compact membrane comprising on the surface thereof living cells selected from the group consisting of keratinocytes, melanocytes, Merkel's cells originating from the blood, Langerhans' cells originating from the blood, sebocytes, cells originating from the blood, and nerve

cells.

10. The product of claim 1, wherein the collagen sponge is compressed at a pressure of at least about 50 bar, equivalent to about $50 \cdot 10^5$ Pa, this compression optionally taking place at a temperature ranging between 20 and 80°C.

11. The product of claim 10, wherein the pressure ranges between 50 bar ($50 \cdot 10^5$ Pa) and 200 bar ($200 \cdot 10^5$ Pa), this compression optionally taking place at a temperature ranging between 40°C and 60°C.

12. The product of claim 1, wherein the essentially compact membrane is prepared prior to combination with the porous layer.

13. The product of claim 12, wherein after having prepared the essentially compact membrane, the collagen gel is deposited on at least one surface of the essentially compact membrane and the combination of the collagen gel with the essentially compact membrane is frozen and lyophilised to give said composite product.

14. The product of claim 1, wherein the collagen comprises mammalian collagen.

15. The product of claim 1, wherein the collagen comprises bovine collagen.

16. The product of claim 1, wherein at least one of the two layers is produced from a collagen gel containing a mixture of soluble collagen and insoluble collagen.

17. The product of claim 16 wherein said insoluble collagen is comprising collagen fibers.

18. The product of claim 1 wherein the collagen is selected from the group consisting of type I collagen and type III collagen.

19. The product of claim 1, wherein at least one of the two layers is produced from a collagen gel containing a mixture of soluble collagen and insoluble collagen, wherein the collagen is selected from the group consisting of type I collagen and type III collagen.

20. A process for the manufacture of a composite product comprising at least one porous collagen layer covered on at least one side with an essentially compact collagen membrane, wherein:

a) the essentially compact collagen membrane is prepared either by drying a first collagen gel, or by compressing a collagen sponge obtained by the freezing-lyophilization of a collagen gel;

b) a second collagen gel is prepared separately;

c) either the essentially compact membrane is deposited on the second collagen gel, or the second collagen gel is poured onto the essentially compact membrane; and finally

d) ~~the whole is frozen-lyophilized to give said composite product.~~

21. The process according to claim 20 wherein the collagen sponge used to prepare the essentially compact membrane is compressed at a pressure of at least 50 bar ($50 \cdot 10^5$ Pa)

22. ~~The process of claim 20, wherein the collagen sponge is compressed at a pressure ranging between 50 bar ($50 \cdot 10^5$ Pa) and 200 bar ($200 \cdot 10^5$ Pa).~~

23. The process of claim 20 wherein the compression step takes place at a temperature of between 20 and 80°C.

24. The process of claim 20, wherein the collagen is selected from collagen and a mixture of collagen with a substance selected from the group consisting of a polysaccharide, cellulose, dextran, an alginate and a carrageenan.

25. The process of claim 24, wherein the polysaccharide is selected from a glycosaminoglycan and chitosan.

26. The process of claim 20, wherein said collagen comprises or is essentially consisting of mammalian collagen.

27. The process of claim 20, wherein said collagen comprises or is essentially consisting of bovine collagen.

28. ~~The process of claim 20, wherein at least one of the two layers, or both layers, are crosslinked.~~

29. The process of claim 28, wherein the crosslinking is selected from the group consisting of a physical crosslinking, a chemical crosslinking, and a combination thereof.

30. The process of claim 29, wherein said physical crosslinking is a thermal dehydration under vacuum.

31. The process of claim 29, wherein said chemical crosslinking is selected from the group consisting of a crosslinking with diphenylphosphorylazide, a crosslinking with an aldehyde, a crosslinking with glutaraldehyde, a crosslinking with a carbodiimide, a crosslinking with a succinimide and combinations thereof.

32. The process of claim 20, wherein a compound which favors cell development is added during manufacture.

33. The process of claim 32, wherein said compound which favors cell development is selected from the group consisting of a growth factor, cytokine and

a chemokine

~~34. The process of claim 20, wherein living cells are introduced into at least one of the two layers.~~

35. The process of claim 34, wherein said living cells are selected from the group consisting of normal living cells, genetically modified living cells and malignant living cells.

~~36. The process of claim 34, wherein said living cells are originating substantially exclusively from young subjects.~~

37. The process of claim 34, wherein said living cells are originating substantially exclusively from elderly subjects.

38. The process of claim 34, wherein said living cells are selected from the group consisting of fibroblasts, keratinocytes, melanocytes, Langerhans' cells originating from the blood, endothelial cells originating from the blood, blood cells, particularly macrophages or lymphocytes, chondrocytes, osteocytes, particularly osteoblasts, Merkel's cells originating from the blood, sebocytes, adipocytes and nerve cells.

39. The process of claim 20, wherein living fibroblasts are introduced into the porous layer.

~~40. The process of claim 20, wherein living cells are deposited on the surface of the compact membrane, said cells being selected from the group consisting of keratinocytes, melanocytes, Merkel's cells originating from the blood, Langerhans' cells originating from the blood, sebocytes, cells originating from the blood, and nerve cells.~~

41. The process of claim 34, wherein the living cells are provided either by the sequential culture or by the concomitant culture of the different types of cells, these cells originating from culture or biopsy.

42. An artificial skin comprising a composite product as defined in claim 1.

43. An artificial skin comprising a composite product as defined in claim 9.

~~44. The artificial skin of claim 42, comprising living cells obtained substantially exclusively from young cells from young subjects.~~

~~45. The artificial skin of claim 42, wherein said artificial skin comprising living cells obtained substantially exclusively from aged cells from elderly subjects.~~

46. An artificial skin comprising living cells essentially prepared from substantially exclusively young cells originated from young subjects.

47. An artificial skin comprising living cells essentially prepared from

substantially exclusively aged cells originated from elderly subjects.

48. A method of in vitro testing of the efficacy of a potential active substance comprising using an artificial skin comprising living cells prepared substantially exclusively from young cells taken from young subjects.

49. A method of in vitro testing of the efficacy of a potential active substance comprising using an artificial skin comprising living cells prepared substantially exclusively from aged cells taken from elderly subjects.

50. A method of reconstructing damaged areas of skin in vivo comprising performing said reconstruction with an artificial skin prepared essentially from a composite product as defined in claim 1.

51. A method of reconstructing damaged areas of skin in vivo comprising performing said reconstruction with an artificial skin prepared essentially from a composite product as defined in claim 9.

52. The method of claim 51, wherein at least one of the two layers is produced from a collagen gel containing a mixture of soluble collagen and insoluble collagen, the collagen being selected from the group consisting of type I collagen and Type III collagen.

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